

399-2-9 (C6186) Log Data Report

Borehole Information:

Borehole: 399-2-9 (C6186)			Site: 300-FF-5		
Coordinates (WA St Plane)		GWL¹ (ft):	34.1	GWL Date:	05/14/08
North (m)	East (m)	Drill Date	TOC² Elevation	Total Depth (ft)	Type
Unknown	Unknown	5/13/08	Unknown	65.0	Sonic

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Threaded Steel	2.85	7 5/8	6 7/8	3/8	-2.85	62.8

Borehole Notes:

Well site geologist reported depth to bottom, depth to water and depth of casing. Logging engineer measured casing using a steel tape and rounding to the nearest 1/16-in. The zero reference is the ground surface for log data.

Logging Equipment Information:

Logging System:	Gamma 1 N		Type:	60% HPGe SGLS
Effective Calibration Date:	03/28/08	Calibration Reference:	Serial No.:	45TP22010A
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Logging System:	Gamma 1 M		Type:	NMLS
Effective Calibration Date:	05/06/08	Calibration Reference:	Serial No.:	H340207279
		Logging Procedure:	HGLP-MAN-002, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2	3 Repeat
Date	05/14/08	05/15/08	05/16/08
Logging Engineer	McClellan	McClellan	McClellan
Start Depth (ft)	0.0	50.0	63.5
Finish Depth (ft)	51.0	63.5	57.0
Count Time (sec)	200	200	200
Live/Real	R	R	R
Shield (Y/N)	N	N	N
MSA Interval (ft)	0.5	0.5	0.5
Log Speed (ft/min)	N/A	N/A	N/A
Pre-Verification	AN071CAB	AN072CAB	AN073CAB
Start File	AN071000	AN072000	AN073000
Finish File	AN071102	AN072027	AN073013
Post-Verification	AN071CAA	AN072CAA	AN073CAA
Depth Return Error (in.)	0.5 high	0	0
Comments	Fine gain adjustment made before – 086.	Fine gain adjustment made prior to – 020.	No fine gain adjustment made. Repeat section.

Neutron Moisture Logging System (NMLS) Log Run Information:

Log Run	4	5
Date	05/16/08	05/16/08
Logging Engineer	McClellan	McClellan
Start Depth (ft)	0.0	30.75
Finish Depth (ft)	30.75	27.0
Count Time (sec)	15	15
Live/Real	R	R
Shield (Y/N)	N	N
MSA Interval (ft)	0.25	0.25
Log Speed (ft/min)	N/A	N/A
Pre-Verification	AM001CAB	AM001CAB
Start File	AM001000	AM001124
Finish File	AM001123	AM001139
Post-Verification	AM001CAA	AM001CAA
Depth Return Error (in.)	N/A	0
Comments	None	Repeat section.

Logging Operation Notes:

Data were collected using Gamma 1, HO 68B-3574. SGLS pre- and post-survey verification measurements were acquired in the Amersham KUTH-118 field verifier. NMLS pre- and post-survey verification measurements were acquired in the standard field verifier. A centralizer was installed on the sonde prior to logging. Maximum logging depth achieved was 63.5 ft before sonde un-weighted.

Analysis Notes:

Analyst:	LEGLER	Date:	6/09/08	Reference:	GJO-HGLP 1.6.3, Rev. 0
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SGLS pre- and post-survey verification spectra met the acceptance criteria for the established system. NMLS pre- and post-survey verification spectra met the acceptance criteria for the established system, but the verification spectrum file AM001CAB had a measurement above the upper control limit for count rate (cps).

A casing correction for a 3/8-in. thick casing was applied during analysis for depths up to 62.8 ft. where casing ends, leaving 0.7 ft of open hole uncorrected. A water correction was also applied during analysis from 33.5 ft to total logged depth of borehole.

SGLS spectra were processed in batch mode in APTEC SUPERVISOR to identify individual peaks and count rates. Concentrations were calculated using an EXCEL template identified as G1NMay08.xls using an efficiency function and corrections for casing, dead time and water as determined by annual calibrations.

NMLS spectra were processed in batch mode in APTEC SUPERVISOR to identify counts. Count rates were calculated using an EXCEL template identified as G1MMay08.xls. NMLS data are presented in counts per second (cps), because no calibration data is available for a 6 7/8-in. inner diameter borehole casing.

Results and Interpretations:

U-235 was detected at 15 ft and U-238 was detected at 22 ft and 57 ft. Further inspection of the spectra at these depths indicate that these detections are statistical fluctuations associated with the processing software and are not considered valid. A plot of the manmade radionuclides for Cs-137, U-235, and U-238 are also included in this log data report.

Repeat sections of SGLS and NMLS logs showed good repeatability.

HGLP-LDR-230, Rev. 0

The water level was adjusted in the SGLS log to 33.5 from 34.1 ft due to a depth return error of 0.5-in high in the first log run (0 –51 ft). The water level in the borehole also appears to have increased to approximately 30 ft based on the observation in NMLS log on 5/16/08.

SGLS data collected on 5/14/08 indicated depth to groundwater at approximately 33.5 ft. NMLS data collected on 5/16/08 indicate depth to ground water at approximately 30.75 ft. The depth to groundwater appears to fluctuate with changes in river level.

List of Log Plots:

Depth Reference is ground surface

Manmade Radionuclides

Natural Gamma Logs

Combination Plot

Total Gamma & Dead Time

Total Gamma & Moisture

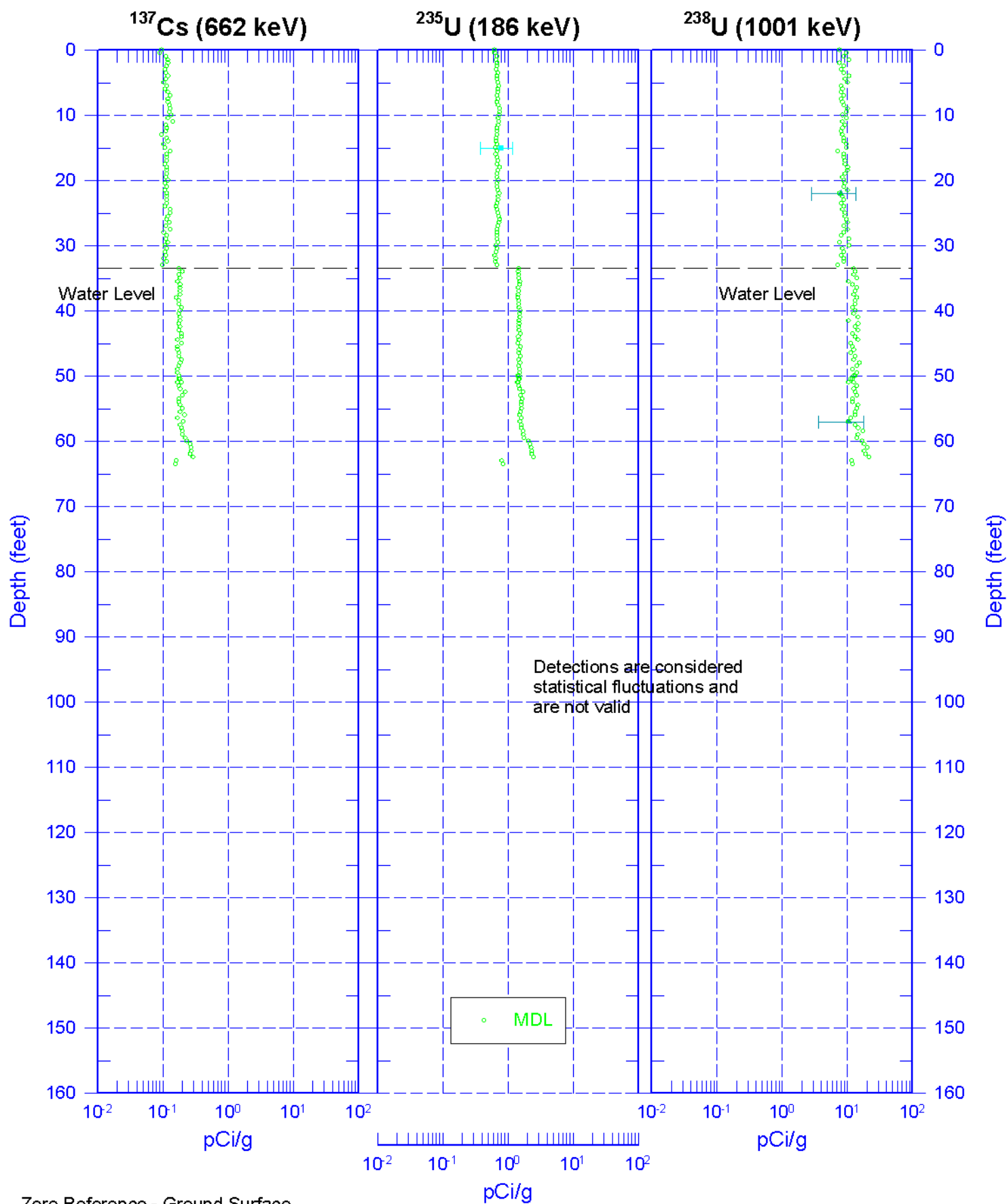
Repeat Section of Natural Gamma Logs

Repeat Section of Moisture

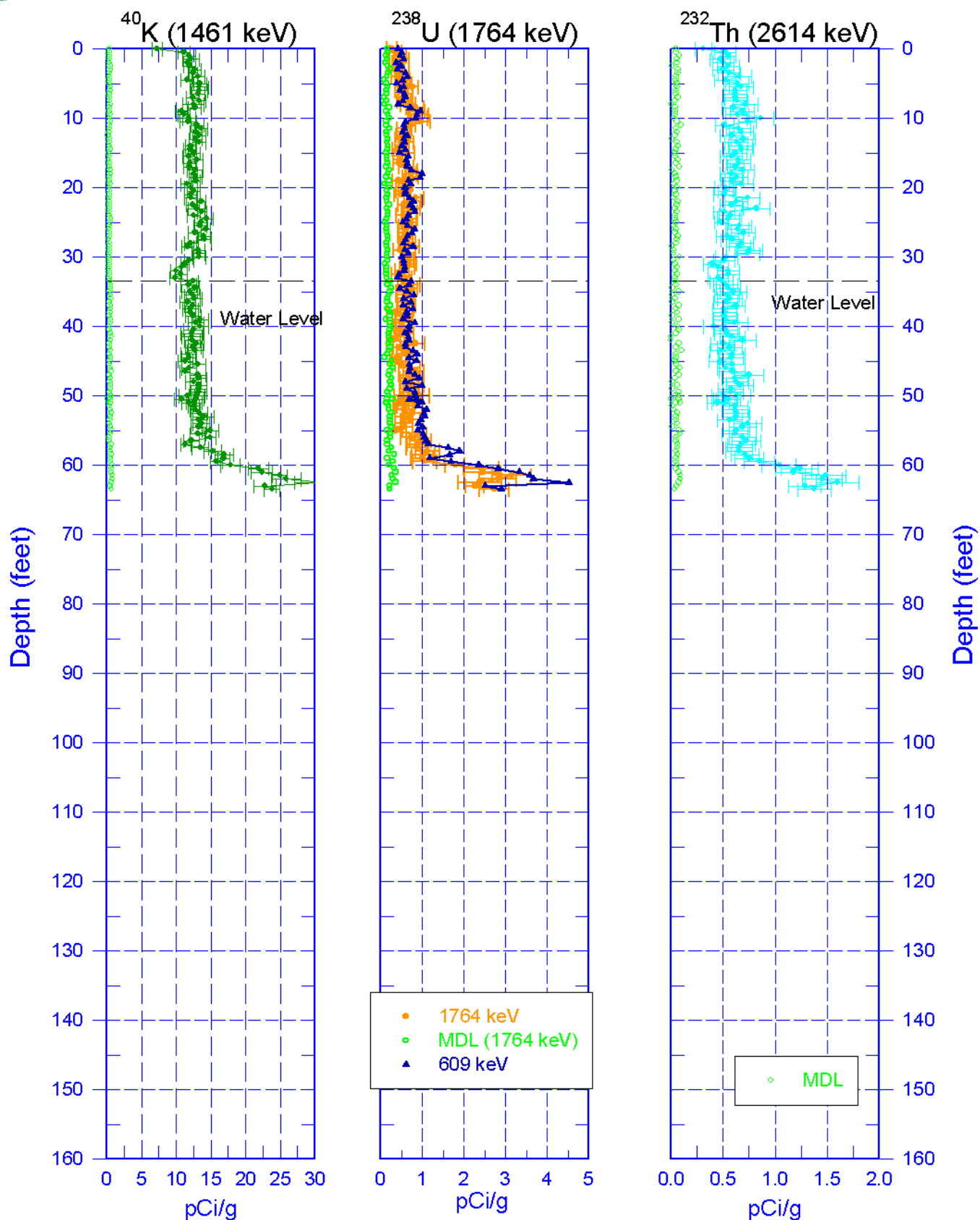
¹ GWL – groundwater level

² TOC – top of casing

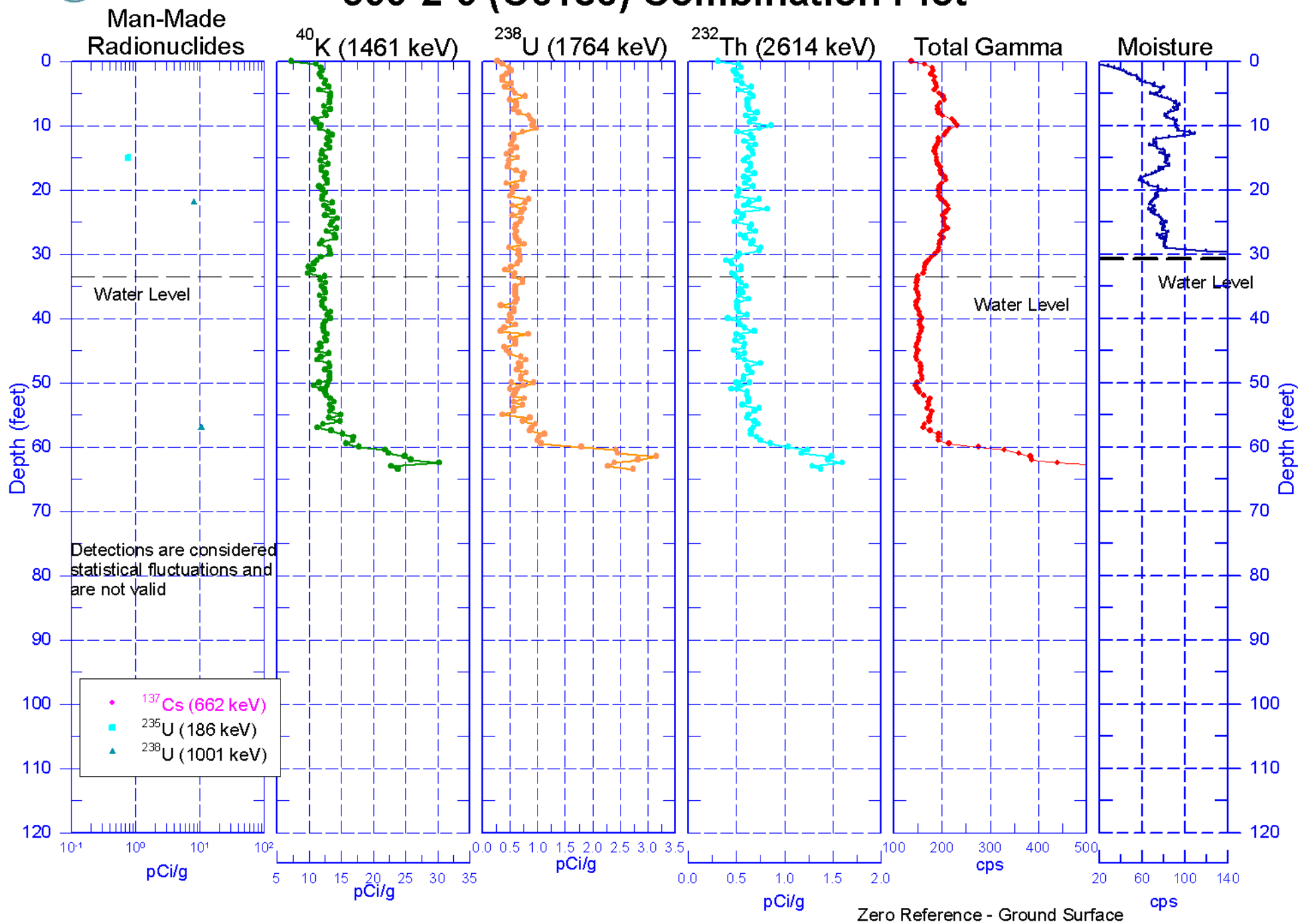
399-2-9 (C6186) Manmade Radionuclides



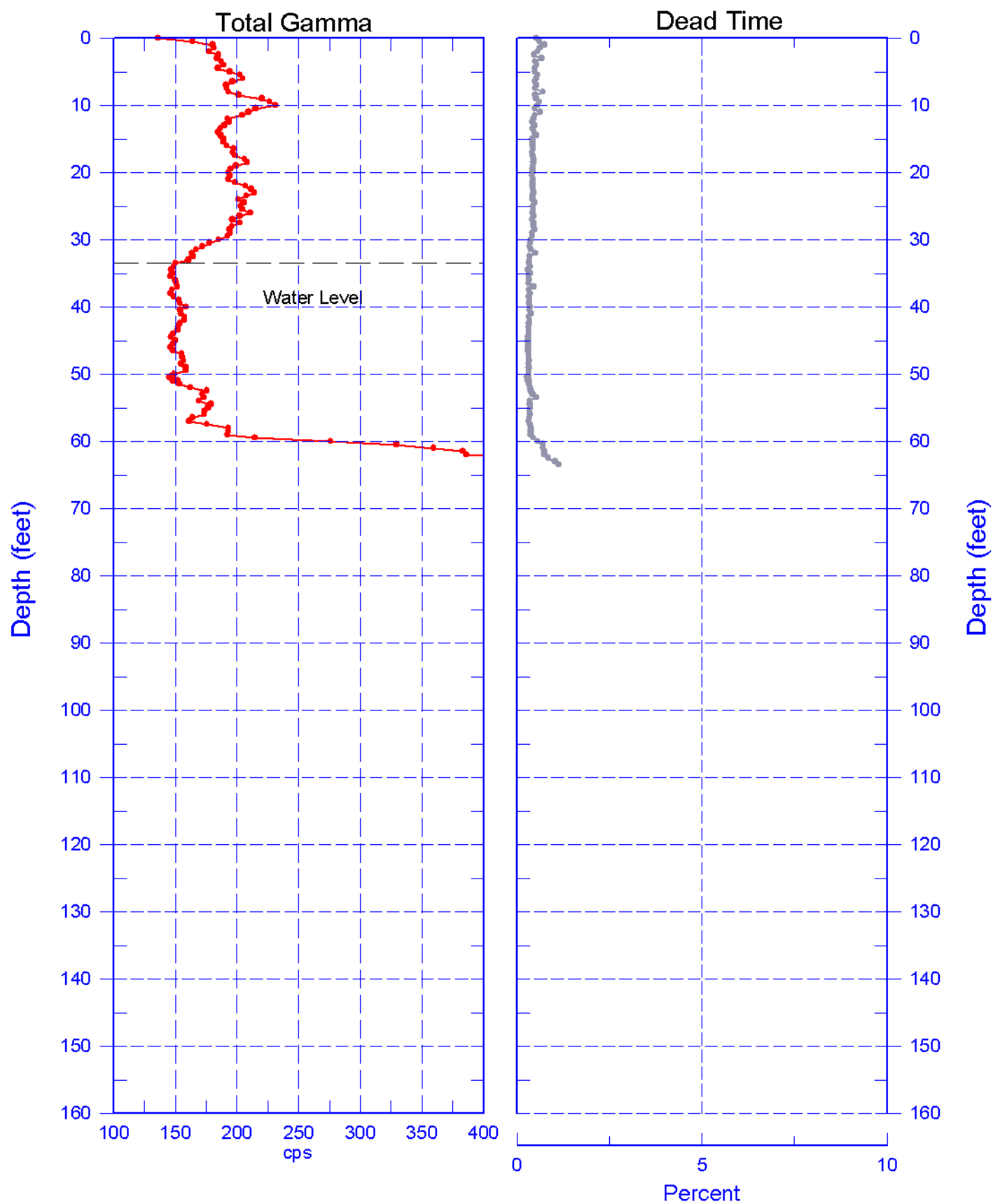
399-2-9 (C6186) Natural Gamma Logs



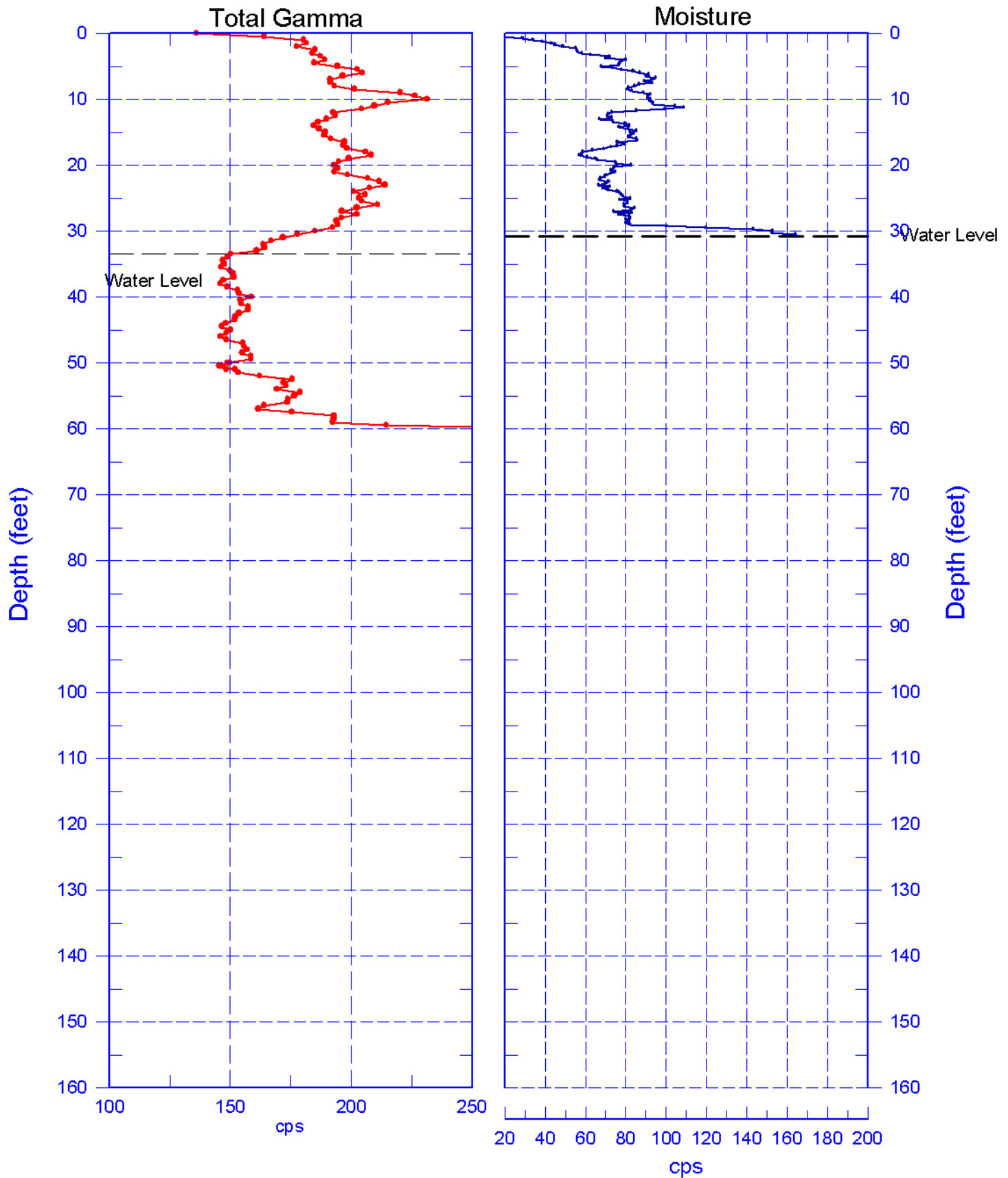
399-2-9 (C6186) Combination Plot

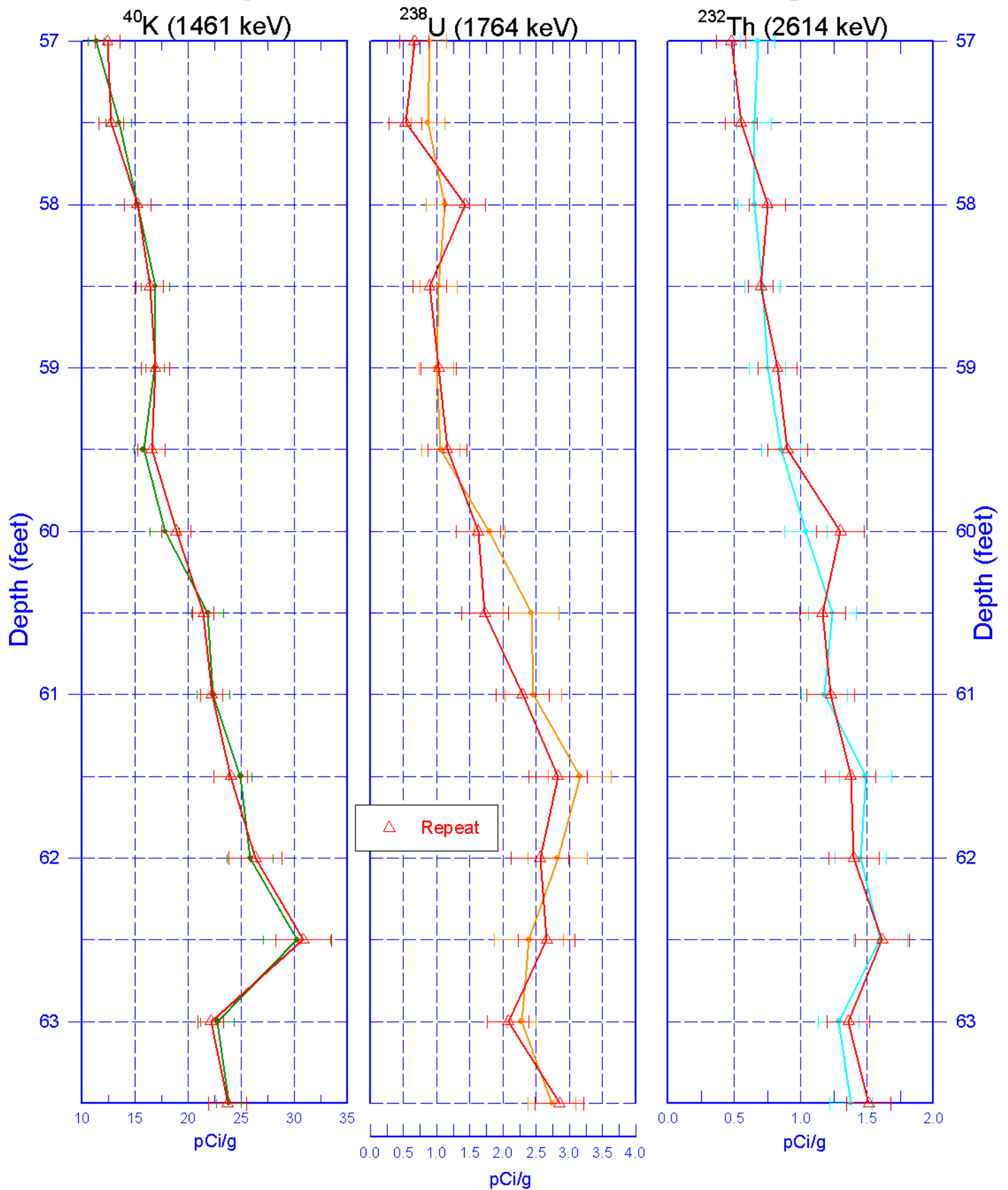


399-2-9 (C6186) Total Gamma & Dead Time



399-2-9 (C6186) Total Gamma & Moisture





399-2-9 (C6186) Moisture Repeat Section

